CLAIMS

1. A liquid ejecting apparatus comprising:

a movable head that is provided with a plurality of nozzles for ejecting a liquid;

a carry unit for carrying a medium in a predetermined carrying direction; and

a sensor for detecting an edge of said medium;

wherein said liquid ejecting apparatus controls ejection of said liquid from said plurality of nozzles in accordance with a result of the detection of said sensor; and

wherein a position, in the carrying direction, of said sensor is at the same position of or on an upstream side of a nozzle located most upstream in said carrying direction, of among said plurality of nozzles.

2. A liquid ejecting apparatus comprising:

a movable head that is provided with a plurality of nozzles for ejecting a liquid;

a carry unit for carrying a medium in a predetermined carrying direction; and

a sensor for detecting an edge of said medium;

wherein said liquid ejecting apparatus controls ejection of said liquid from said plurality of nozzles in accordance with a result of the detection of said sensor;

wherein, due to a detection error in said sensor that occurs when said sensor detects the edge of said medium, a position of the edge of said medium when said edge is detected fluctuates within a range from a first position to a second position; and

wherein a position, in said carrying direction, of

a nozzle located most upstream in said carrying direction, of among said plurality of nozzles, is between said first position and said second position.

3. A liquid ejecting apparatus according to claim 2, wherein the position, in said carrying direction, of said nozzle located most upstream in said carrying direction is in the middle of said first position and said second position.

4. A liquid ejecting apparatus according to claim 2, wherein said sensor detects the edge of said medium; and

wherein, based on a result of this detection, the liquid is kept from being ejected from said nozzle located most upstream in said carrying direction and nozzles located within a predetermined distance from that nozzle in said carrying direction.

5. A liquid ejecting apparatus according to claim 4, wherein, after said sensor detects the edge of said medium, a process of carrying said medium in said carrying direction using said carry unit and a process of moving said head and ejecting the liquid onto said medium are repeated for a predetermined number of times, and then ejection of the liquid onto said medium is ended.

6. A liquid ejecting apparatus according to claim 5, wherein the predetermined number of times is a plural number of times; and

wherein the predetermined distance in the process of ejecting the liquid onto said medium is increased in

correspondence with an increase in an aggregate carry amount of said medium after the detection of the edge of said medium.

7. A liquid ejecting apparatus according to claim 6, wherein said predetermined distance is a value obtained by subtracting a predetermined amount from said aggregate carry amount.

8. A liquid ejecting apparatus according to claim 7, wherein, the higher the precision of detection with which the edge of said medium is detected is, the smaller said predetermined amount is made.

9. A liquid ejecting apparatus according to claim 2, wherein the edge of said medium is detected by determining whether or not the edge of said medium had passed a predetermining position in said carrying direction.

10. A liquid ejecting apparatus according to claim 9, wherein said liquid ejecting apparatus further comprises a medium-supporting section for supporting said medium;

wherein said sensor is provided with a light-emitting section for emitting light toward said medium-supporting section, and a light-receiving section for receiving the light that has been emitted from said light-emitting section; and

wherein, by determining, based on an output value of said light-receiving section, whether or not said medium is in a traveling direction of the light emitted from said

light-emitting section, it is determined whether or not said edge had passed the predetermined position in said carrying direction.

11. A liquid ejecting apparatus according to claim 10,

wherein the light is emitted from said light-emitting section toward a plurality of positions different from one another in a direction of movement of said head; and

wherein, based on the output value of said light-receiving section that has received the emitted light, it is determined whether or not said medium is in said traveling direction of the light.

12. A liquid ejecting apparatus according to claim 11,

wherein said sensor is provided in/on a movable moving member;

wherein the light is emitted from said light-emitting section toward said plurality of positions while moving said moving member; and

wherein, based on the output value of said light-receiving section that has received the emitted light, it is determined whether or not said medium is in said traveling direction of the light.

13. A liquid ejecting apparatus according to claim 12,

wherein said head is provided in/on said moving member; and

wherein, while moving said moving member,

the light is emitted from said light-emitting section toward said plurality of positions,

based on the output value of said

light-receiving sensor that has received the emitted light, it is determined whether or not said medium is in said traveling direction of the light, and

the liquid is ejected from said nozzles provided in said head.

14. A liquid ejecting apparatus according to claim 2, wherein said liquid is ejected with respect to an entire surface of said medium.

15. A liquid ejecting apparatus according to claim 2, wherein said liquid is ink; and

wherein said liquid ejecting apparatus is a printing apparatus that prints on a medium to be printed, which serves as said medium, by ejecting the ink from said nozzles.

16. A liquid ejecting apparatus comprising:

a movable head that is provided with a plurality of nozzles for ejecting an ink;

a carry unit for carrying a medium to be printed in a predetermined carrying direction; and

a sensor for detecting an edge of said medium to be printed;

wherein said liquid ejecting apparatus controls ejection of said ink from said plurality of nozzles in accordance with a result of the detection of said sensor;

wherein, due to a detection error in said sensor that occurs when said sensor detects the edge of said medium to be printed, a position of the edge of said medium to be printed when said edge is detected fluctuates within

a range from a first position to a second position;

wherein a position, in said carrying direction, of a nozzle located most upstream in said carrying direction, of among said plurality of nozzles, is in the middle of said first position and said second position;

wherein, based on the result of the detection, the ink is kept from being ejected from said nozzle located most upstream in said carrying direction and nozzles located within a predetermined distance from that nozzle in said carrying direction;

wherein, after said sensor detects the edge of said medium to be printed, a process of carrying said medium to be printed in said carrying direction using said carry unit and a process of moving said head and ejecting the ink onto said medium to be printed are repeated for a predetermined number of times, and then ejection of the ink onto said medium to be printed is ended;

wherein the predetermined number of times is a plural number of times;

wherein the predetermined distance in the process of ejecting the ink onto said medium to be printed is increased in correspondence with an increase in an aggregate carry amount of said medium to be printed after the detection of the edge of said medium to be printed;

wherein said predetermined distance is a value obtained by subtracting a predetermined amount from said aggregate carry amount;

wherein, the higher the precision of detection with which the edge of said medium to be printed is detected is, the smaller said predetermined amount is made;

wherein the edge of said medium to be printed is detected by determining whether or not the edge of said

medium to be printed had passed a predetermining position in said carrying direction;

wherein said liquid ejecting apparatus further comprises a supporting section for supporting said medium to be printed;

wherein said sensor is provided with a light-emitting section for emitting light toward said supporting section, and a light-receiving section for receiving the light that has been emitted from said light-emitting section;

wherein, by determining, based on an output value of said light-receiving section, whether or not said medium to be printed is in a traveling direction of the light emitted from said light-emitting section, it is determined whether or not said edge had passed the predetermined position in said carrying direction;

wherein the light is emitted from said light-emitting section toward a plurality of positions different from one another in a direction of movement of said head;

wherein, based on the output value of said light-receiving section that has received the emitted light, it is determined whether or not said medium to be printed is in said traveling direction of the light;

wherein said sensor is provided in/on a movable moving member;

wherein the light is emitted from said light-emitting section toward said plurality of positions while moving said moving member;

wherein, based on the output value of said light-receiving section that has received the emitted light, it is determined whether or not said medium to be printed is in said traveling direction of the light;

wherein said head is provided in/on said moving

member;

wherein, while moving said moving member,

the light is emitted from said light-emitting section toward said plurality of positions,

based on the output value of said light-receiving sensor that has received the emitted light, it is determined whether or not said medium to be printed is in said traveling direction of the light, and

the ink is ejected from said nozzles provided in said head;

wherein said ink is ejected with respect to an entire surface of said medium to be printed; and

wherein said liquid ejecting apparatus is a printing apparatus that prints on said medium to be printed by ejecting the ink from said nozzles.

17. A printing system comprising:

a main computer unit; and

a liquid ejecting apparatus that is connectable to said main computer unit and that is provided with

a movable head that is provided with a plurality of nozzles for ejecting a liquid;

a carry unit for carrying a medium in a predetermined carrying direction; and

a sensor for detecting an edge of said medium;

wherein said liquid ejecting apparatus controls ejection of said liquid from said plurality of nozzles in accordance with a result of the detection of said sensor; and

wherein a position, in the carrying direction, of said sensor is at the same position of or on an upstream side of a nozzle located most upstream in said carrying direction, of among said plurality of nozzles.

18. A liquid ejecting apparatus comprising:

a movable head that is provided with a plurality of nozzles for ejecting a liquid;

a carry unit for carrying a medium in a predetermined carrying direction; and

a sensor for detecting an edge of said medium and that is movable with said head;

wherein said liquid ejecting apparatus controls ejection of said liquid from said plurality of nozzles in accordance with a result of the detection of said sensor; and

wherein a position, in the carrying direction, of said sensor is at the same position of or on an upstream side of a nozzle located most upstream in said carrying direction, of among said plurality of nozzles.

19. A liquid ejecting apparatus comprising:

a movable head that is provided with a plurality of nozzles for ejecting a liquid;

a carry unit for carrying a medium in a predetermined carrying direction; and

a sensor for detecting an edge of said medium and that is movable with said head;

wherein said liquid ejecting apparatus controls ejection of said liquid from said plurality of nozzles in accordance with a result of the detection of said sensor; and

wherein a position, in the carrying direction, of said sensor is on an upstream side of a nozzle located most upstream in said carrying direction, of among said plurality of nozzles.

20. A liquid ejecting apparatus according to claim 19,

wherein said sensor detects a lateral edge of said medium; and

wherein said liquid ejecting apparatus controls ejection of the liquid from said plurality of nozzles in accordance with a position of the lateral edge of said medium that has been detected.

21. A liquid ejecting apparatus according to claim 20,

wherein a position, on the most downstream side in said carrying direction, of a detection region of said sensor is located on the upstream side, in said carrying direction, of said nozzle located most upstream in said carrying direction.

22. A liquid ejecting apparatus according to claim 19,

wherein said carry unit carries said medium by a predetermined carry amount in said carrying direction; and

wherein the position, in the carrying direction, of said sensor is on the upstream side, in said carrying direction, away from said nozzle located most upstream in said carrying direction by more than said carry amount.

23. A liquid ejecting apparatus according to claim 22,

wherein said liquid ejecting apparatus ejects the liquid onto the edge of said medium using a portion of said plurality of nozzles after said sensor no longer detects

said medium.

24. A liquid ejecting apparatus according to claim 23, wherein said liquid ejecting apparatus ejects the liquid onto said medium using all of said plurality of nozzles in a state where said sensor no longer detects said medium, and

after said carry unit has further carried said medium by said carry amount, said liquid ejecting apparatus ejects said liquid onto the edge of said medium using a portion of said plurality of nozzles.

25. A liquid ejecting apparatus according to claim 22, wherein a position, on the most downstream side in said carrying direction, of a detection region of said sensor is on the upstream side, in said carrying direction, away from said nozzle located most upstream in said carrying direction by more than said carry amount.

26. A liquid ejecting apparatus according to claim 19, wherein said carry unit has a carry roller for carrying said medium up to a position where said liquid can be ejected onto said medium; and

wherein the position, in the carrying direction, of said sensor is on the downstream side of said carry roller.

27. A liquid ejecting apparatus according to claim 26, wherein a process of correcting a skew in said medium is performed on the upstream side of said carry roller.

28. A liquid ejecting apparatus according to claim 26, wherein a position, on the most upstream side in said

carrying direction, of a detection region of said sensor is on the downstream side, in said carrying direction, of said carry roller.

29. A liquid ejecting apparatus according to claim 26, wherein said liquid ejecting apparatus further comprises a supporting section for supporting said medium that is carried from said carry roller; and

wherein said sensor is arranged such that a detection region of said sensor is located on said supporting section.

30. A liquid ejecting apparatus according to claim 29, wherein calibration of said sensor is performed based on an output signal of said sensor in a state in which said supporting section is not supporting said medium.

31. A liquid ejecting apparatus according to claim 29, wherein a position, on the most upstream side in said carrying direction, of the detection region of said sensor is on said supporting section.

32. A liquid ejecting apparatus according to claim 29, wherein said carry unit carries said medium in a slanted manner with respect to said supporting section; and

wherein the position of said sensor is on the downstream side, in said carrying direction, of a position at which a front edge of said medium first comes into contact with said supporting section.

33. A liquid ejecting apparatus according to claim 32,

wherein said carry unit has a paper discharge roller for discharging said medium; and

wherein said medium that has been carried in a slanted manner with respect to said supporting section passes a print region within which the liquid ejected from said nozzles land, and then reaches said paper discharge roller.

34. A liquid ejecting apparatus according to claim 32,

wherein a position, on the most upstream side in said carrying direction, of the detection region of said sensor is on the downstream side, in said carrying direction, of the position at which the front edge of said medium first comes into contact with said supporting section.

35. A liquid ejecting apparatus according to claim 19,

wherein said liquid is ink; and

wherein said liquid ejecting apparatus is a printing apparatus that prints on a medium to be printed, which serves as said medium, by ejecting the ink from said nozzles.

36. A liquid ejecting apparatus comprising:

a movable head that is provided with a plurality of nozzles for ejecting an ink;

a carry unit for carrying a medium to be printed in a predetermined carrying direction; and

a sensor for detecting an edge of said medium to be printed and that is movable with said head;

wherein said liquid ejecting apparatus controls ejection of said ink from said plurality of nozzles in accordance with a result of the detection of said sensor;

wherein a position, in the carrying direction, of said

sensor is on an upstream side of a nozzle located most upstream in said carrying direction, of among said plurality of nozzles;

wherein said sensor detects a lateral edge of said medium to be printed;

wherein said liquid ejecting apparatus controls ejection of the ink from said plurality of nozzles in accordance with a position of the lateral edge of said medium to be printed that has been detected;

wherein a position, on the most downstream side in said carrying direction, of a detection region of said sensor is located on the upstream side, in said carrying direction, of said nozzle located most upstream in said carrying direction;

wherein said carry unit carries said medium to be printed by a predetermined carry amount in said carrying direction;

wherein the position, in the carrying direction, of said sensor is on the upstream side, in said carrying direction, away from said nozzle located most upstream in said carrying direction by more than said carry amount;

wherein said liquid ejecting apparatus ejects the ink onto the edge of said medium to be printed using a portion of said plurality of nozzles after said sensor no longer detects said medium to be printed;

wherein said liquid ejecting apparatus ejects the ink onto said medium to be printed using all of said plurality of nozzles in a state where said sensor no longer detects said medium to be printed, and

after said carry unit has further carried said medium to be printed by said carry amount, said liquid ejecting apparatus ejects said ink onto the edge of said medium to

be printed using a portion of said plurality of nozzles;

wherein the position, on the most downstream side in said carrying direction, of the detection region of said sensor is on the upstream side, in said carrying direction, away from said nozzle located most upstream in said carrying direction by more than said carry amount;

wherein said carry unit has a carry roller for carrying said medium to be printed up to a position where said ink can be ejected onto said medium to be printed;

wherein the position, in the carrying direction, of said sensor is on the downstream side of said carry roller;

wherein a process of correcting a skew in said medium to be printed is performed on the upstream side of said carry roller;

wherein a position, on the most upstream side in said carrying direction, of the detection region of said sensor is on the downstream side, in said carrying direction, of said carry roller;

wherein said liquid ejecting apparatus further comprises a supporting section for supporting said medium to be printed that is carried from said carry roller;

wherein said sensor is arranged such that the detection region of said sensor is located on said supporting section;

wherein calibration of said sensor is performed based on an output signal of said sensor in a state in which said supporting section is not supporting said medium to be printed;

wherein the position, on the most upstream side in said carrying direction, of the detection region of said sensor is on said supporting section;

wherein said carry unit carries said medium to be

printed in a slanted manner with respect to said supporting section;

wherein the position of said sensor is on the downstream side, in said carrying direction, of a position at which a front edge of said medium to be printed first comes into contact with said supporting section;

wherein said carry unit has a paper discharge roller for discharging said medium to be printed;

wherein said medium to be printed that has been carried in a slanted manner with respect to said supporting section passes a print region within which the ink ejected from said nozzles land, and then reaches said paper discharge roller;

wherein the position, on the most upstream side in said carrying direction, of the detection region of said sensor is on the downstream side, in said carrying direction, of the position at which the front edge of said medium to be printed first comes into contact with said supporting section; and

wherein said liquid ejecting apparatus is a printing apparatus that prints on said medium to be printed by ejecting the ink from said nozzles.

37. A printing system comprising:

a main computer unit; and

a liquid ejecting apparatus that is connectable to said main computer unit and that is provided with

a movable head that is provided with a plurality of nozzles for ejecting a liquid;

a carry unit for carrying a medium in a predetermined carrying direction; and

a sensor for detecting an edge of said